USER GUIDE

ENGLISH

This digital projector is designed with the latest state-of-the-art technologies in illumination, imaging, optics, electronics, thermal and industrial design in order to serve traditional as well as novel imaging applications across a variety of markets, offering features such as:

- PROFESSIONAL GRADE POWERED PROJECTION LENSES with bayonet mounts
- DUAL LAMP SYSTEM with separate lamps for improved life, redundancy and 24/7 operation
- DUAL OPTOMECHANICAL IRIS for variable contrast and brightness
- MECHANICAL SHUTTER for total black
- SXGA+ 1400x1050 pixel DLP™ technology
- SINGLE CHIP DMD™ with DarkChip3™ technology by Texas Instruments®
- HIGH CONTRAST for vibrant colors and deep blacks
- HIGH RESOLUTION for unprecedented detail
- HIGH BRIGHTNESS for larger screens
- DEEP BLACKS for maximum dynamics
- REDUCED IMAGE NOISE through high end signal processing
- FAROUDJA DCDi™ Video processing and de-interlacing
- ECO MODE for reduced power consumption and lower audible noise
- VARIABLE LAMP POWER for alignment of multi-screen configurations
- LONG LIFE LAMP (up to 4000 hours) in low power ECO mode
- STYLISH AND COMPACT DESIGN to fit most applications, installed or movable
- MULTIPLE LENS OPTIONS for close-up front or rear projection and other applications
- SIX VIDEO and GRAPHICS INPUTS for virtually any video and data source
- TWO EXPANSION PORTS for application specific signal processing
- LAN, RS232 and USB ports for control and monitoring

The specifications and functionality of the product may change without prior notice.

This user guide contains important information about safety precautions and the set-up and use of the projector. Please read the manual carefully before you operate the projector.

SAFETY

This device complies with relevant safety regulations for data processing equipment for use in an office environment. Before using the projector for the first time, please read the safety instructions thoroughly.

WARNING

Use only the cables and cords supplied with the projector or original replacement cables. Using other cables or cords may lead to malfunction and permanent damage of the unit.

Always use 3-prong / grounded power cord to ensure proper grounding of the unit. Never use 2-prong power cords, as this is dangerous and could lead to electrical shock.

Never open the unit. The projector contains no user serviceable parts. Refer all repairs to qualified personnel only.

Make sure that no objects enter into the vents and openings of the set. Do not spill any liquids on the projector or into the vents or openings of the unit.

Always remove lens cap before switching on the projector. If the lens cap is not removed, it may melt due to the high energy light emitted through the lens. Melting the lens cap may permanently damage the surface of the projection lens.

Do not look into the projection lens when the projector is switched on. The strong light may permanently damage sight.

Do not look into the laser beam when activated on the remote control. Laser light may permanently damage sight. Do not point laser beam on people.

Only place the projector on a stable surface, or mount it securely using an approved ceiling-mount.

Do not drop the projector.

Always operate the projector horizontally, within the range of the adjustable rear feet. Operating the unit in other positions may reduce lamp life significantly, and may lead to overheating, resulting in malfunctioning.

Always allow ample airflow through the projector. Never block any of the air vents. Never cover the unit in any way while running. Allow for sufficient distance to walls and ceilings to avoid overheating. Minimum safety distance to any side of the unit is 50 cm / 20" in any direction.

CAUTION! Hot air is exhausted from the rear vent. Do not place objects that are sensitive to heat nearer than 50cm / 20" to the exhaust vent.

The projector is designed for indoor use only. Never operate the unit outdoors.

Do not operate the projector outside its temperature and humidity specifications, as this may result in overheating and malfunctioning.

Only connect the projector to signal sources and voltages as described in the technical specification. Connecting to unspecified signal sources or voltages may lead to malfunction and permanent damage of the unit.

Allow the unit to cool down for 60 minutes before lamp change.

INFORMATION AND WARNING ABOUT POTENTIAL HEALTH ISSUES RELATED TO MERCURY VAPOR.

This projector uses a very powerful UHP™ lamp for illumination to produce an extremely bright image.

This technology is similar to other high-pressure discharge lamps that are extensively used in cars, street lights and other lighting appliances today. These lamps, like fluorescent lighting, contain small amounts of mercury. The amount of mercury present in a lamp is far below the limits of danger set by the authorities.

It is very important that lamps containing mercury are treated properly to minimize potential health hazards.

The UHP™ lamp, like any other high brightness projector lamp, is under high-pressure when operating. While the lamp and the projector are carefully designed to minimize the probability of lamp rupture, the lamp may break while operating and small amounts of mercury vapor may be emitted from the projector. The probability of rupture increases when the lamp reaches its nominal life. It is therefore highly recommended that the lamp is replaced when the rated lifetime is reached.

As a general precaution, secure good ventilation in the room when operating the projector. If lamp rupture occurs, evacuate the room and secure good ventilation. Children and pregnant women in particular should leave the room.

When replacing a worn lamp, dispose of the used lamp carefully by proper recycling.

Mercury is a naturally occurring, stable metallic element that may pose a safety risk to people under certain conditions. According to the Public Health Statement for Mercury published by the Agency for Toxic Substances and Disease Registry ("ATSDR", part of the United States Public Health Service), the brain, central nervous system and kidneys are sensitive to the effects of mercury, and permanent damage can occur at sufficiently high levels of exposure. Acute exposure to high concentrations of mercury vapor can cause conditions such as lung and airway irritation, tightness in the chest, a burning sensation in the lungs, coughing, nausea, vomiting and diarrhea. Children and fetuses are particularly sensitive to the harmful effects of metallic mercury to the nervous system.

Seek medical attention if any of the above symptoms are experienced or if other unusual conditions are experienced following lamp rupture.

SAFETY & WARNINGS
english

WARNING LEAD

This product contains chemicals, including lead, known to the State of California to cause birth defects or other reproductive harm.

REMOTE CONTROL WARNING

Laser radiation class II product; wavelength 670nm; maximum output 1mW.

Remote control complies with applicable requirements of 21 CFR 1040.10 and 1040.11.
Remote control complies with applicable requirements of EN 60 825-1: 1994 + A11

WARNING SYMBOLS

READ USER GUIDE
Attention! Read the user guide for further information!

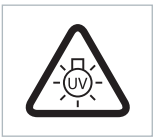
DANGEROUS VOLTAGE
Danger! High voltage inside the product!

HOT
Warning! Hot surfaces!

WAIT
Warning! Wait until cooled down!

MERCURY
Warning! Product contains mercury! Recycle properly, do not dispose of in ordinary waste!

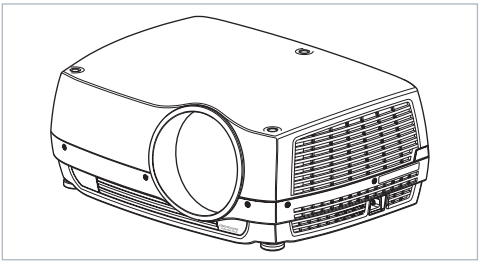
UV
Warning! UV radiation inside the product!



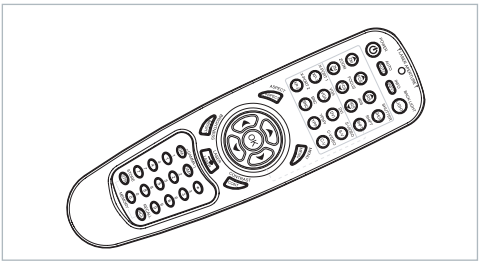
RECYCLE
Warning! Recycle properly, do not dispose of in ordinary waste!

NO TELEPHONE
Warning! Do not connect to telephone lines!

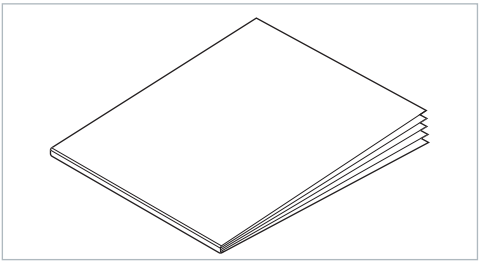
Projector without lens
Lens supplied seperately



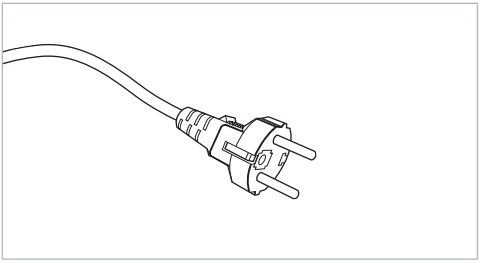
Remote control with batteries



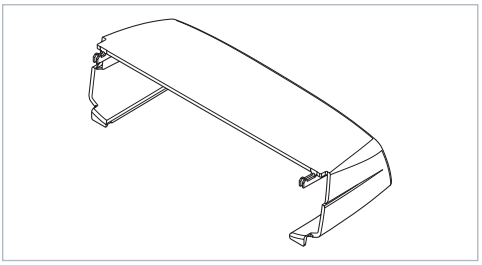
User guide



Power Cord
(country dependent)



Ceiling mount cover



Before Set up and Use
Unpack the supplied parts and familiarise yourself with the various components.

A range of fixed and zoom lenses is available to cover most applications, both front and rear. The lenses are powered and fitted with a bayonet mount for ease of installation.

Switch off all equipment before setting-up for proper function.

When mounting and changing lenses, be aware that the optical system is exposed to dust and foreign particles as long as the lens is not attached to the system. Do not leave the lens mount open longer than necessary to change lens. If a lens is not mounted, always insert the protection lid to avoid dust and foreign particles entering the internal optics.

Never run the projector without lens mounted.

A Remove the protection lid from the bayonet mount by turning the knob anti-clockwise.

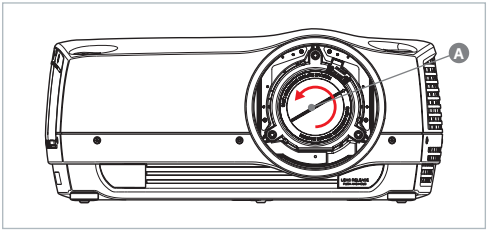
B Remove the rear lens cap.

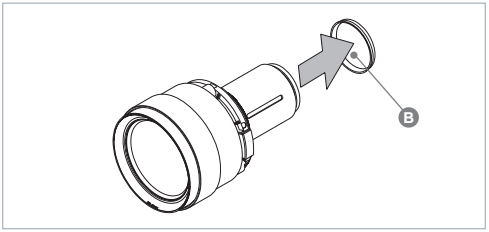
C Attach the projection lens using the bayonet mount, observing the red insertion marks.

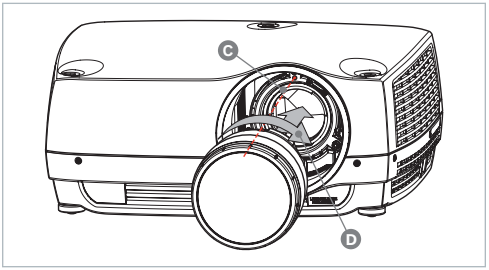
D Turn the lens firmly clockwise until it stops with a click.

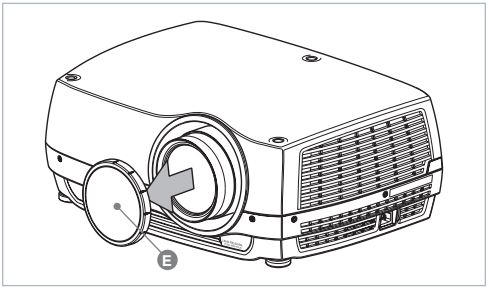
E Remove the lens cap from the projection lens. If you switch the projector on with the lens cap in place, the lens cap may melt, damaging not only the lens cap, but also the projection lens and surrounding parts.

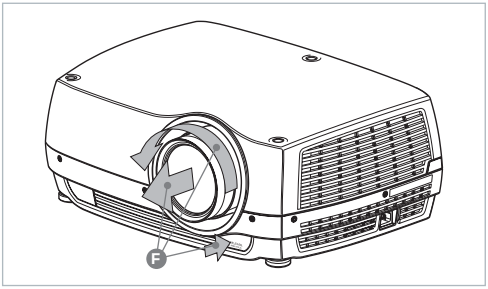
F To change lens, first remove the curret lens by pushing the release button and twisting the lens counter-clockwise until it comes loose.
- Pull the lens out.
- Insert the new lens as described above.











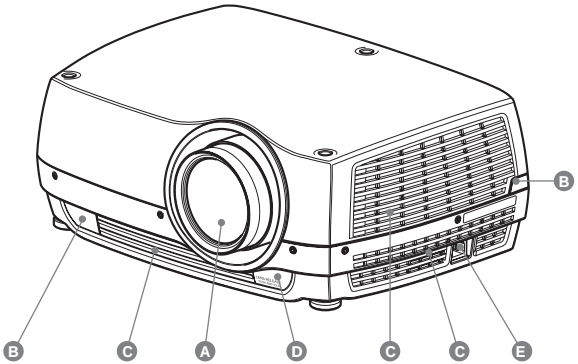
A Lens

B IR sensor

C Ventilation

D Lens release

E Power connector

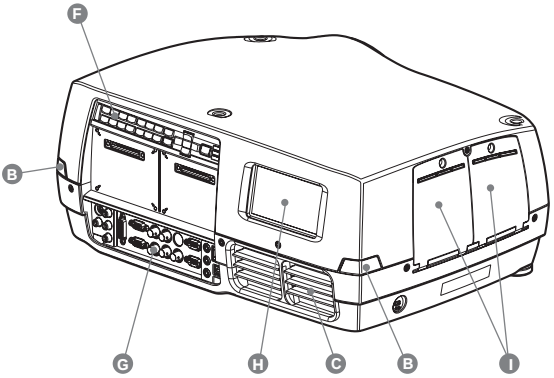


F Keypad

G Connector panel

H LCD

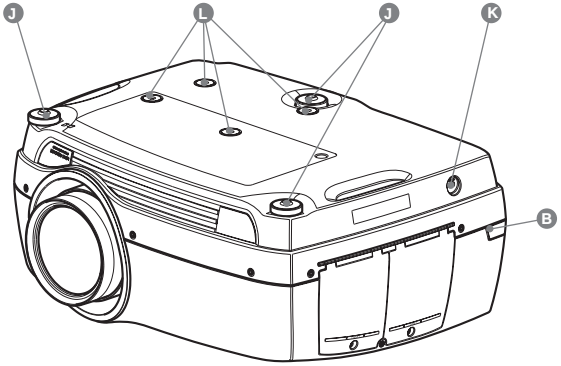
I Lamp lids



J Adjustable feet

K Security lock

L Ceiling mount



The keypad is illuminated for operation in dark environments. Available functions are illuminated in yellow while selected (active) functions are illuminated in green. Functions that are not available are not illuminated.

In addition to the various functions, 10 keys are numbered 0-9. These keys are used for PIN code and other numeric functions as applicable.

POWER
Switches the projector between on and standby modes. Press firmly (1 sec) to switch on. Press firmly (1 sec) twice to switch off.

AUTO
Adjusting the projector to display a correct image, including position, width, height, contrast, brightness and overall stability.

MENU
Activates the menu system. Use the four arrow keys to navigate and «OK» to activate.

ARROW KEYS
Use the arrow keys to navigate the menu system or to control lens and LCD functions.

OK
Confirm menu option when menu system is activated.

ZOOM
Select ZOOM, then use arrow keys to zoom in or out.

FOCUS
Select FOCUS, then arrow keys to focus the image

SHIFT
Select SHIFT, then the arrow keys to shift the image up, down or sideways.

IRIS
Select IRIS, then arrow keys to adjust to desired combination of brightness and contrast.

SHUTTER
Press SHUTTER to stop the projected image completely.

VGA
Selects the VGA input as active source.

DVI
Activates the DVI-D input.

BNC
Selects BNC as source.

YPbPr
Activates the component video input.

S-VIDEO
Selects super video as active source.

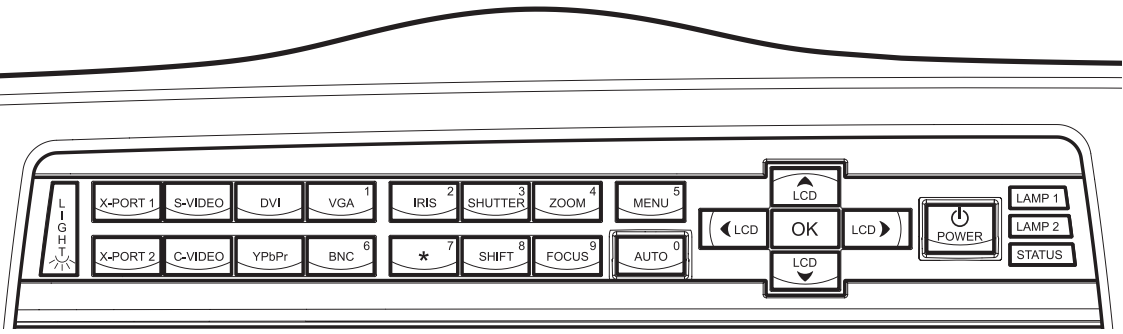
C-VIDEO
Activates the composite video input.

X-PORT 1
Activates the X-PORT 1. This key is enabled by the X-PORT 1 device as and when attached. Functionality depends on the actual device connected (see separate user guide for this device).

X-PORT 2
Activates the X-PORT 2. This key is enabled by the X-PORT 2 device as and when attached. Functionality depends on the actual device connected (see separate user guide for this device).

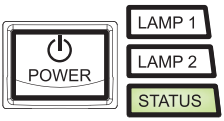
LIGHT
This key switches the illumination of the connector area on and off.

INDICATORS
The LAMP 1, LAMP 2 and STATUS indicators are not keys, so please do not push.

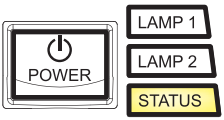


STATUS
Indicates the overall system status by green, yellow and red colors.

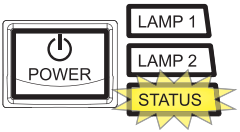
PERMANENT GREEN LIGHT
The projector is turned on and in normal operation.



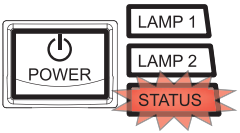
PERMANENT YELLOW LIGHT
The unit is in standby mode; no source(s) connected, or the source(s) connected are inactive or switched off, thereby activating the power-save function (DPMS). You may enable or disable the power save function in the SET UP sub menu, DPMS on or off.



FLASHING YELLOW LIGHT
Please wait. The yellow light will flash a period after power cord is connected (10-15 sec.), and a period after going to standby mode while lamp is cooling down (approximately 45 sec.). The projector may not be turned on again until the light has turned to permanent yellow.

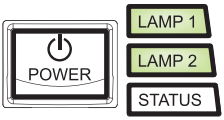


FLASHING RED LIGHT
Projector is overheated. Turn off immediately! Check if air inlets are covered or if ambient temperature is outside specifications. The projector can not be restarted unless the power cord is disconnected and reconnected again. If the projector continues to flash red, you will need to return the unit for service.

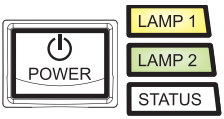


LAMP 1, LAMP 2
Indicate the status of each lamp by green and red colors.

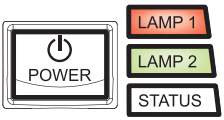
PERMANENT GREEN LIGHT
The lamp is on and in normal operation.



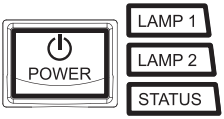
PERMANENT YELLOW
The lamp is ready and in standby mode



PERMANENT RED LIGHT
Lamp life has expired. Please change projection lamp immediately. Failing to change lamp may lead to lamp explosion.



NO LIGHT
No lamp inserted / connected



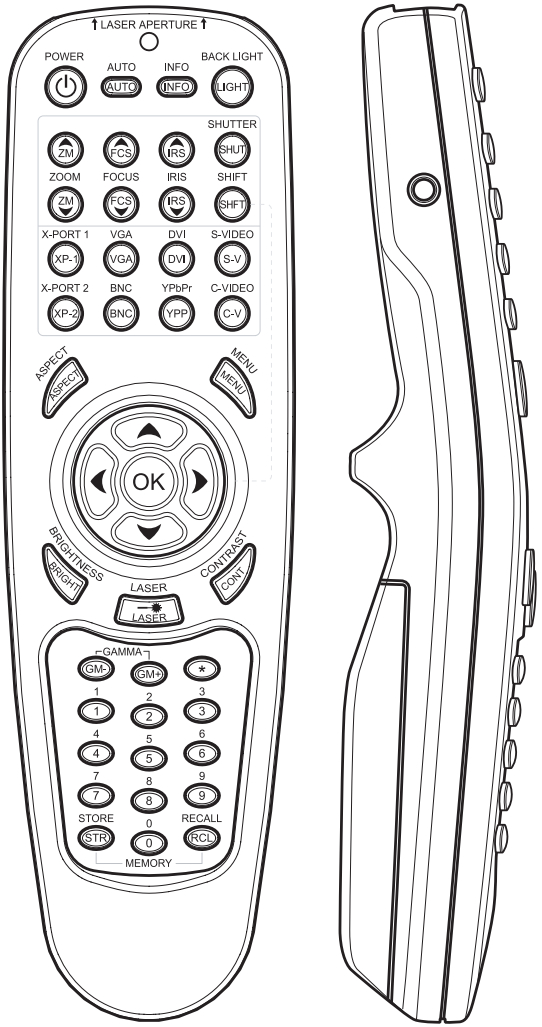
LCD
The projector is fitted with a backlit LCD screen that reports system status. You can navigate the LCD screen by using the arrow keys on the keypad.

The remote control allows flexible access to the projector settings, either through direct keys, or through the menu system. The remote control is backlit for use in dark environments. It also has a data-jack that allows for wired connection to the projector. When the wire is connected, the IR (infra-red) beam and internal batteries are switched off.

The remote control can be operated either in 'broadcast mode', or 'individual mode'. When several projectors are in use in an installation, individual control may be convenient. Individual control is available either by wired remote control, using the data-jack, or by using an individual number code.

For individual control, first set the individual RC ID code using the projector menu system, see the UTILITIES sub menu.

Then, to select a specific projector to control, first press the '*' button in the lower keypad area, then the code as set in the target projector. A code can be in the range '0'..'255'. '0' is reserved for broadcast. To select another target, repeat the process by pressing '*' and a new code. To exit individual control, press '*''*' twice or press '*' and '0'.



POWER
Switches the projector between on and standby modes.

AUTO
Adjusting the projector to display a correct image, including position, width, height, contrast, brightness and overall stability.

INFO
Displays source and projector status on screen.

BACKLIGHT
Switches the backlight on and off. The backlight will switch off automatically after ten seconds.

C-VIDEO
Selects the composite video input as signal source.

S-VIDEO
Selects the super video input as signal source.

YPbPr
Selects component video input.

DVI
Selects the DVI input.

VGA
Selects the VGA input.

BNC
Selects the BNC input.

X-PORT 1, 2
Activates the X-PORT 1, 2. These keys are enabled by the X-PORT 1, 2 devices as and when attached. Functionality depends on the actual devices connected

SHUTTER
Toggles the mechanical shutter on and off.

ZOOM
Press the ZOOM keys to zoom the image in and out.

FOCUS
Press the FOCUS keys to focus the image.

SHIFT
Press SHIFT, then the arrow keys to shift the image up, down or sideways.

IRIS
Press the IRIS keys to adjust the optomechanical stop to the desired combination of brightness and contrast.

BRIGHT
Press BRIGHTNESS, then the arrow keys to adjust image brightness from dark to bright.

CONTRAST
Press CONTRAST, then the arrow keys to adjust the image contrast from soft to hard.

ASPECT
Cycles through the aspect ratios available with the current source.

MENU
Toggles the menu system on and off.

ARROW KEYS
Use the arrow keys to navigate in the menu system and other adjustments.

LASER
Activates the built-in laser pointer. CAUTION! Do not point laser beam at people. Do not stare into laser beam.

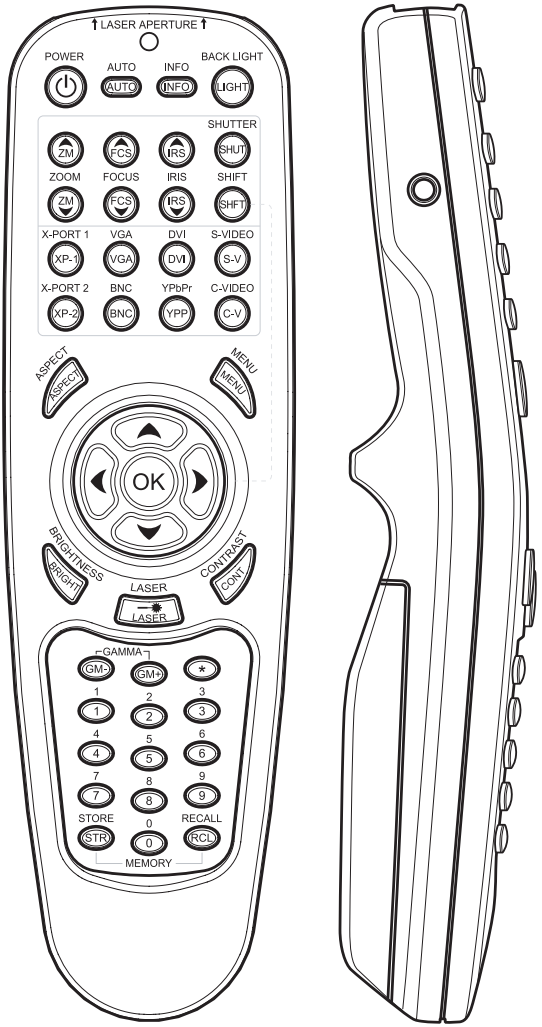
OK
Press OK to confirm selected option in menu.

GAMMA
Press GM+ or GM- to select between gamma settings.

STORE
Press STORE, then one digit 0-9, to store user setting in memory.

RECALL
Press RECALL, then one digit 0-9, to recall user setting from memory.

0-9
Used for various numeric functions.



The conector panel may be illuminated by pushing the LIGHT key on the keypad.

A C-VIDEO: Used for standard video quality.

B S-VIDEO: Used for improved quality video.

C YPbPr: Used for high quality video reproduction.

D DVI-D - Digital RGB: For a low noise computer and video image.

E Monitor VGA out: Allows for connection to local VGA monitor or daisy-chaining of several projectors using VGA. Works with VGA inputs only.

F VGA - Analog RGB: The standard analog computer graphics interface.

G BNC - Analog RGB: An alternative analog computer graphics or video interface.

CONNECTOR PANEL
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H RS 232 control in-out: Allows for wired remote control and monitoring of many projector functions used in installation environments. The secondary output connector allows for daisy-chaining, enabling both individual and global control and monitoring of multiple projectors.

I RC: Allows connection of external IR receiver or wired remote control.

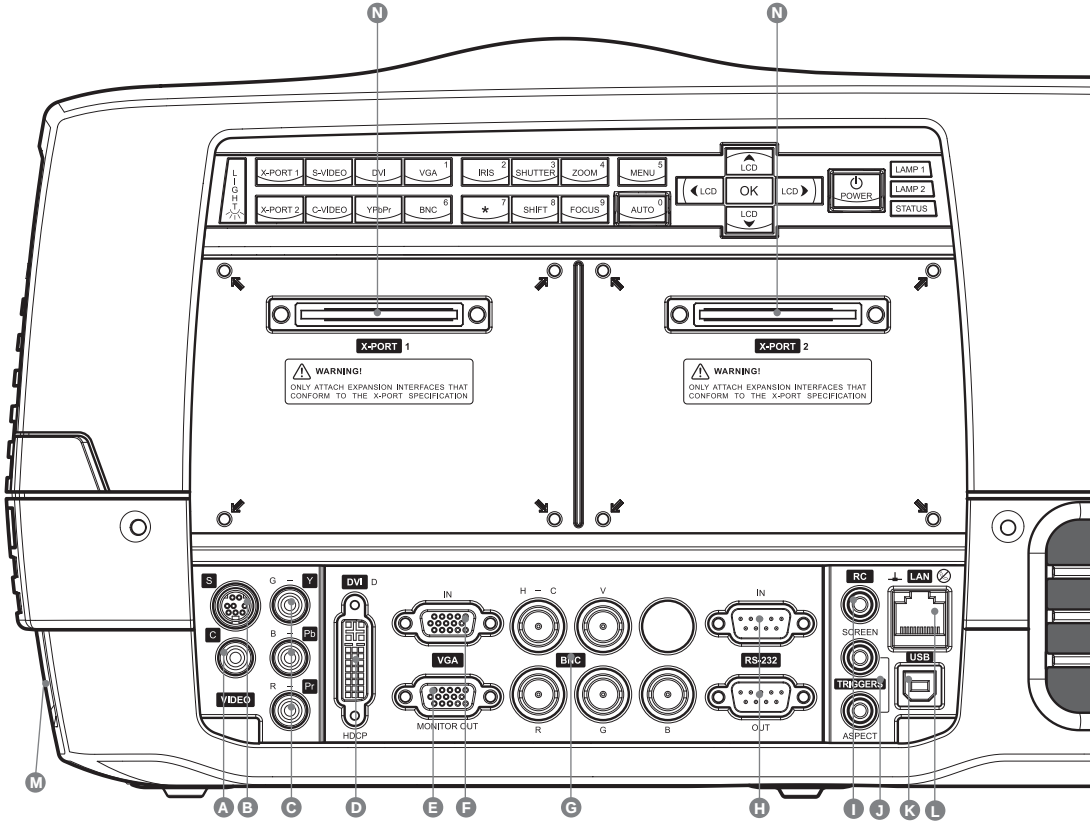
J Triggers: 12VDC for Screen Drop and Aspect Ratio control

K USB - interface: Allows for computer mouse control.

L LAN: Provides access to control and monitoring over a Local Area Network

M Mains power connector: Use only three-prong / grounded power cord.

N X-PORT 1, 2: Custom interfaces used for application-specific signal processing. Use only approved interfaces that conform to the X-PORT specification.



SET UP VIDEO

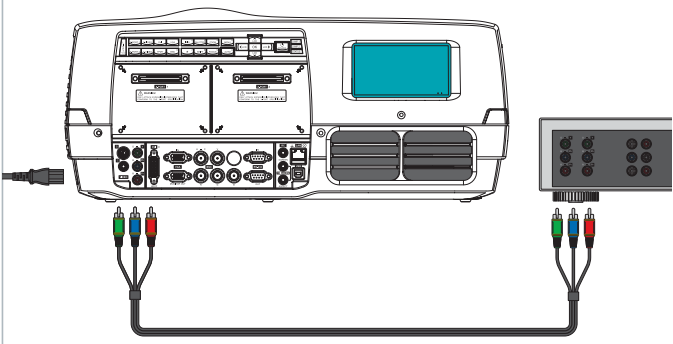
Before setting-up, switch off all equipment.

Four video sources may be connected, using the YPbPr (component), BNC (RGB), S-VIDEO (super video) and VIDEO (composite video) inputs.

Component and RGB video will display more detailed images. Composite video yields images with less detail.

In addition, the DVI-D input can be used with video sources (DVD player fitted with an HDCP™ compliant DVI or HDMI connector) for a pure digital connection.

Connect the power cord.



SETUP COMPUTER

Before setting-up, switch off all equipment.

The projector may be connected to up to three computer sources simultaneously, using the VGA, BNC and DVI inputs.

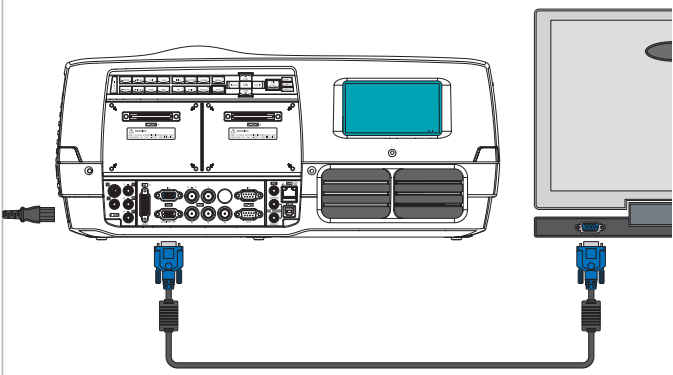
The VGA and BNC interfaces are analog and may cause some noise in the projected image, depending on the signal quality from the graphics card in the computer.

The DVI (Digital Visual Interface) interface is all-digital and will yield a projected image with very low noise.

Connect the RS232 interface to allow for individual or global control of multiple units in a daisy chain configuration.

Connect the LAN connector for individual control and monitoring of multiple projectors over LAN.

Connect the power cord.



Various optical adjustments are available, depending on your choice of lens. All lens adjustments are motorized and controlled by the keypad, remote control or by RS232 or LAN.

Two kinds of lenses are available; fixed or zoom. A fixed lens has permanent focal length, or throw ratio. A zoom lens has variable focal length or throw ratio.

In addition, fixed lenses may or may not be shiftable, depending on type and model. See the specifications for the particular lens.

The throw ratio is defined as the ratio between the projection distance to the screen and the projected image width. With a fixed lens, this ratio is set. With a zoom lens, this ratio can be changed within certain limits specific to the lens in use.

On the keypad, first select lens function, then use the cursor keys to adjust. On the remote control, zoom and focus are direct keys, while lens shift is operated by first selecting SHIFT, then use the arrow keys.

A mechanical SHUTTER is employed that totally shuts off the optical image path. The shutter is directly available from the keypad and the remote control. The shutter is also in place when there is no lens attached.

Select a lens suitable for the application. A range of lenses from very wide to super telezoom is available.

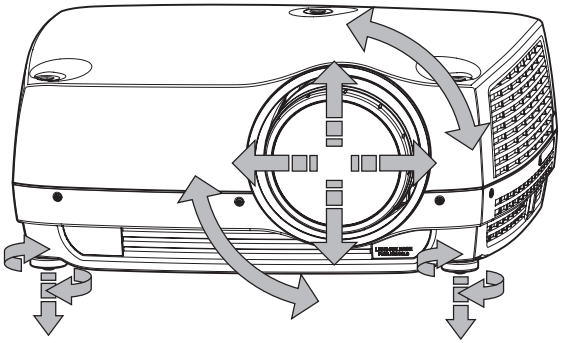
Adjust the horizontal and vertical SHIFT, if applicable, in order to align the image on screen.

If a zoom lens is used, adjust the image to the right size. If a fixed lens is used, relocate the unit to achieve the right image size.

FOCUS the image properly.

Adjust the IRIS to achieve the desired optical balance between brightness and contrast. In a bright environment, brightness is usually maximized resulting in reduced contrast. In a dark environment, less light is needed and desired, while high contrast and deep blacks are appreciated.

To level the image, adjust the feet as needed by turning the feet accordingly.



M

LAMP OPERATION

The projector is fitted with two individual projection lamps that can be run in various modes. In addition, lamps can be replaced as needed separately. This ensures an optimized cost of ownership. Individual lamp timers are maintained for each lamp.

Lamp operation mode is controlled in the LAMPS sub menu.

N

PIN CODE

The projector may be controlled by a PIN (Personal Identity Number) code. The PIN code is 4 digits, and if the PIN code is activated, you must issue the right code to unlock the projector.

To activate the PIN code, see the UTILITIES sub menu.

If a wrong PIN code is issued, you may try again two times. If you fail three times in a row, a PUK (unnlock) code is needed. The PUK code is supplied with the product.

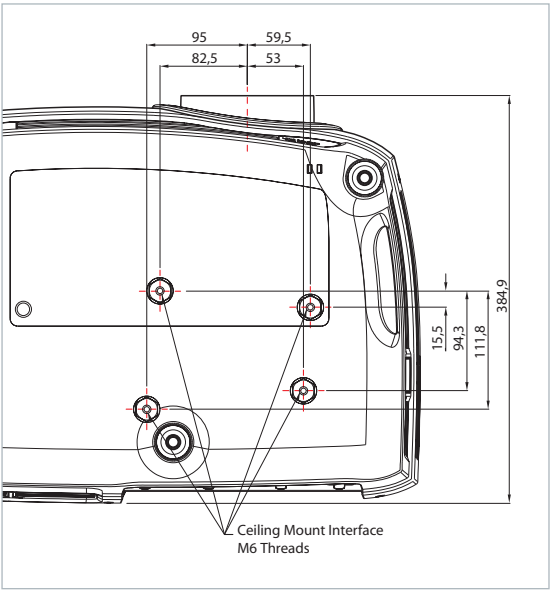
If you also fail three times with the PUK code, the projector locks up permanently, and can only be unlocked by a special service unlock code.

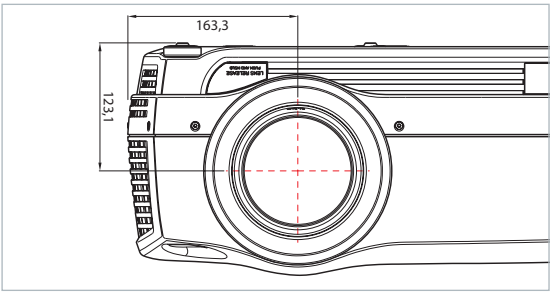
To access this code, you will need to contact your dealer or a service station. The service unlock code will be generated based on a secure, encrypted number that is produced by the projector itself. The projector will produce a new number every time.

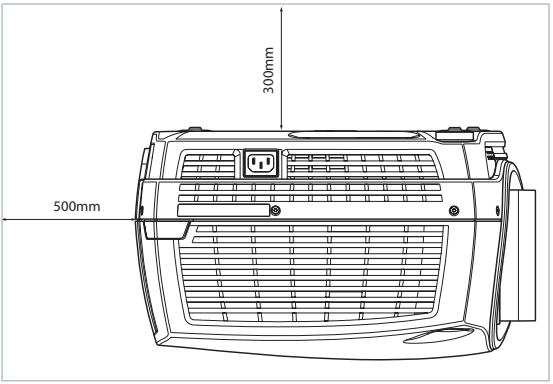
The projector can be ceiling mounted using an approved UL tested/ listed ceiling mount fixture, with a capacity of minimum 60 kg / 130 lbs.

For ceiling mount use M6 screws that penetrate maximum 15 mm / 0.6" into the projector body.

For proper ventilation the minimum distance from ceiling/ rear wall should be: 30/ 50 cm, 12/ 20 inch.







CEILING MOUNT COVER

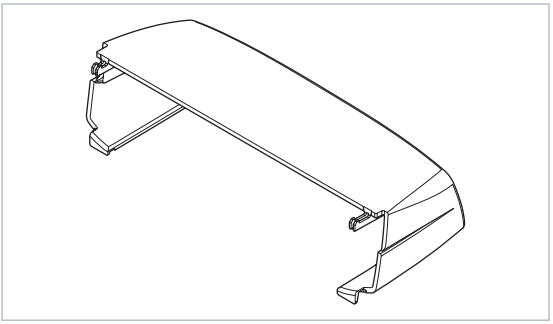
The auxiliary cable cover can be mounted on the projector to conceal the interface cables and power cord when the unit is ceiling mounted.

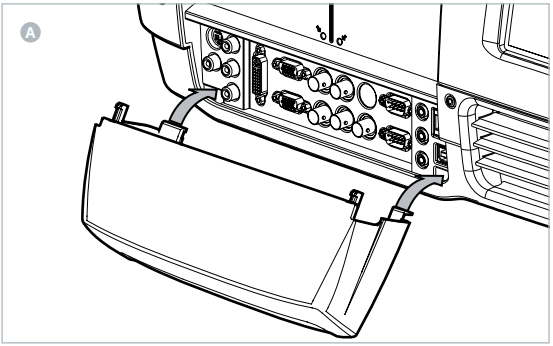
Connect all cables and fix them in place before the cable cover is attached to the projector.

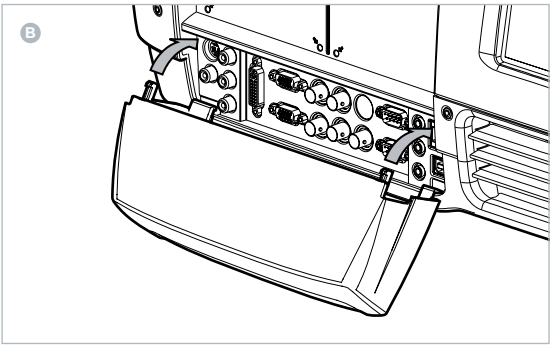
A Attach the cable cover to the projector by inserting the horisontal hooks on the cover in the horisontal slots on the rear of the projector.

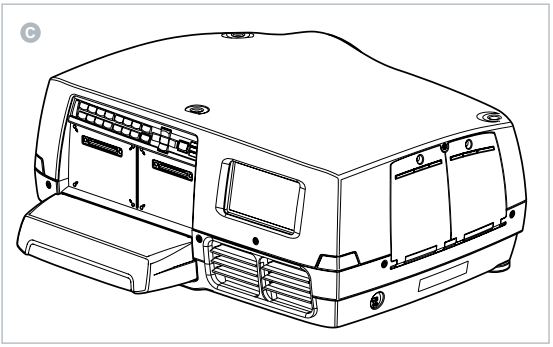
B Turn the cover untill the vertical hooks on the cover are inserted into the vertical slots on the rear of the projector.

C The cover will snap in place, to release pull the vertical hooks on the cover out of the slots, letting the cover hinge on the horisontal hooks.









After setting-up, switch on all equipment.

The projector can be controlled by the keypad on the rear, by the remote control or using the RS232 or LAN interfaces.

When using the remote control, either all or select individual units may be addressed, see the CONTROL sub menu - RC ID. By activating the RC ID, individual control of units in a multiple-unit set-up is then made possible.

To switch the projector on, firmly press the POWER button on the keypad or the remote control. The STATUS indicator will turn from yellow to green when the unit is switched on. The keypad will light up so that all available functions are yellow. Functions not available will have no light. Selected functions will turn green.

If the STATUS indicator is flashing yellow, please wait until it turns permanent yellow.

When only one source is connected, the projector will auto-detect that source. If more sources are connected, the projector will search for the next active source according to the following list, provided that SOURCE SCAN is set to ON in the SET UP sub menu (see description of menu system):

- VGA
- BNC
- DVI-D
- YPbPr (Component)
- S-Video
- C-Video

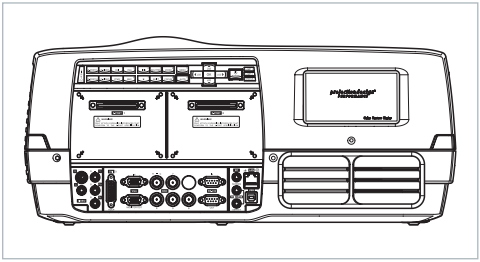
Select between the sources by pressing the SOURCE buttons on the keypad or the remote control. Only sources that are active will be displayed.

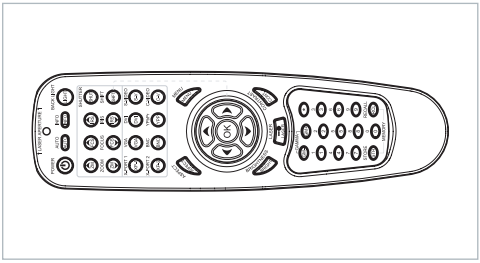
If no source is active, searching messages will appear on the screen.

If no source is active for a long time, the projector will go in standby mode if DPMS (power save) is set to ON in the SET UP sub menu. The STATUS indicator will turn from green to flashing yellow, then yellow. The projector will be switched back on if at least one source is (re)activated. The power-down function can be disabled in the menu. See DPMS in the SET UP sub menu.

To switch the projector off, firmly press the POWER button on the keypad or the remote control twice (to confirm that you really want to switch off the unit). The STATUS indicator will turn from green to flashing yellow, then yellow when switched off.

You may not switch the unit on while the STATUS indicator is flashing yellow. Please wait until the indicator is permanent yellow.





CONTROL SUB MENU

mode		RS232
RS232 Address	auto	fixed
RS232 Fixed		1
baudrate		19200
RC ID		0

SET UP SUB MENU

keystone V	0 –	+
keystone H	0 –	+
IR control	press	▶
DPMS	on	off
source scan	on	off
orientation	desktop	front
OSD		
language		
RGB Video		off

The menu system gives access to a multitude of image and system controls. The menu system is structured through a top menu and several sub menus. The sub menus may vary depending on the actual source selected. Some functions are not available with some sources.

When accessing the menu system, you will enter at the position you left last time you were using the menu system.

Press the MENU key and navigate using the arrow keys on the keypad or the arrow keys on the remote control

TOP MENU

picture
Basic picture controls.

dynamic
Allows additional control over the projected image.

advanced
Advanced picture controls.

set up
General projector controls.

utilities
System controls and information.

control
RS232 and LAN configurations.

lamps
Configuring single and dual lamp modes.

FOR ALL

- picture
- dynamic
- advanced
- setup
- utilities
- control
- lamps

NO SOURCE SELECTED

- setup
- utilities
- control
- lamps

PICTURE SUB MENU

brightness
Adjusts the image brightness. A higher setting will increase the brightness, a lower setting will decrease the brightness of the image.

contrast
Controls the contrast of the image. A higher setting will yield a 'harder' image with larger difference between shades, while a low setting will produce a 'softer' image with less difference between shades.

color
Adjusts the color saturation. A higher setting will produce stronger coloring, while a lower setting will yield paler colors.

tint
Adjusts the NTSC color tint. Applicable to NTSC (American) video standard only. A higher setting will yield a more reddish color scheme, while a lower setting will turn colors more greenish.

hue
Controls the color hue.

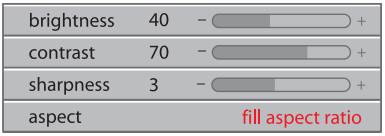
sharpness
Controls the image sharpness. A higher setting will yield a harder image, with less filtering. In video applications, this may produce more noise in the projected image. A lower setting will soften the image, looking more smeared out, and reducing the overall noise.

aspect
Selects image format. An image may be displayed in various aspect ratios. This function is used when displaying source formats that differ from the projectors native display format.

space
Defines the color standard used for component video so that the image is displayed with the proper characteristics.

S-VIDEO / C-VIDEO

VGA / BNC



DVI

YPbPr (progressive)

YPbPr (interlaced)

DYNAMIC SUB MENU

white boost
Increases the white level of the image for enhanced contrast

gamma
The source image is adapted to characteristics typical to certain applications. This enables an optimized display of images, depending on whether the source is video, computer etc.

DVI setup
Enables an expanded dynamic range when using DVI.

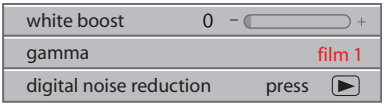
digital noise reduction
Reduce noise in video images from unstable sources, cabling or material.

DNR mode
Switch DNR (digital noise reduction) on or off.

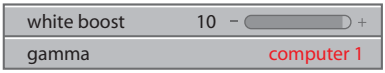
DNR level
Select filtering factor. Heavy filtering will reduce noise, but also smoothen out the image and make it less sharp.

DNR split
You may run half screen with DNR and half screen without DNR to see the difference.

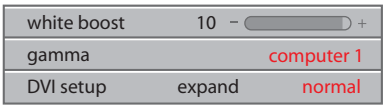
S-VIDEO / C-VIDEO



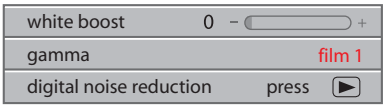
VGA / BNC



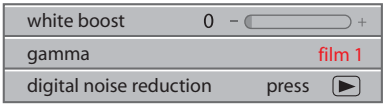
DVI



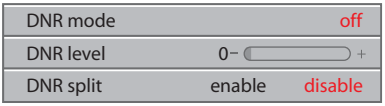
YPbPr (progressive)



YPbPr (interlaced)



DIGITAL NOISE REDUCTION (S- / C-VIDEO / YPbPr)



ADVANCED SUB MENU

h position
Shifts the image sideways.

v position
Shifts the image up and down.

phase
Adjust for stable image. A jittery image may appear with certain VGA sources. You may also press the AUTO button on the keypad or remote control to optimize.

frequency
Adjust image width. An incorrect setting may produce vertical, unstable bands in the image, and parts of the image may not be displayed on screen. Push the AUTO button to find a correct setting, or manually adjust the frequency until the vertical bands disappear.

color temp
Changes the color temperature. A video signal demands a different color temperature than a computer image. A higher setting yields a colder (bluer) image, while a lower setting produces a warmer (more yellow) image.

custom color
Defines custom color temperature. Lets you define your own customized color temperature for your specific application.

video format
Select between manual or auto detection of TV standard.

video type
Select between video types; DVD and VCR. The DVD setting is normally used and will yield well defined video images.

custom brightness
Allows for individual user control of red, green and blue brightness.

custom contrast
Allows for individual user control of red, green and blue contrast.

S-VIDEO / C-VIDEO

H position	50	−		+
V position	50	−		+
color temp	6500	7300	9300	custom
custom color				▶
custom brightness		press		▶
custom contrast		press		▶
video format	auto	NTSC	PAL	SECAM
video type		DVD		VCR

VGA / BNC

H position	50	−		+
V position	50	−		+
Phase	4	−		+
frequency	1688	−		+
color temp	6500	7300	9300	custom
custom color				▶
custom brightness		press		▶
custom contrast		press		▶

DVI

color temp	6500	7300	9300	custom
custom color				▶
custom brightness		press		▶
custom contrast		press		▶

YPbPr (progressive)

H position	50	−		+
V position	50	−		+
Phase	4	−		+
frequency	1688	−		+
color temp	6500	7300	9300	custom
custom color				▶
custom brightness		press		▶
custom contrast		press		▶

YPbPr (interlaced)

H position	50	−		+
V position	50	−		+
color temp	6500	7300	9300	custom
custom color				▶
custom brightness		press		▶
custom contrast		press		▶
video format	auto	NTSC	PAL	SECAM
video type		DVD		VCR

SET UP SUB MENU

keystone V
Adjust vertical keystone correction. Compensates for the geometrical distortion of the projected image resulting from tilting the projector to shoot higher up on the wall.

keystone H
Adjust horizontal keystone correction. Compensates for the geometrical distortion of the projected image resulting from shooting the image at an angle sideways to the screen.

IR control
Activate and deactivate the IR sensors used for remote control. The projector contains one front and two rear, in total three double IR sensors.

IR front, back (left), back (right)
Enable or disable IR receiver.

DPMS
Activate/deactivate DPMS (Display Power Management Signalling). When DPMS is on, the projector will switch off following the powering off or disconnection of the signal source. The projector will switch back on when the signal source is reactivated.

source scan
Switches source scan on and off. With source scan on, the projector will search for another source if the current source is disconnected or switched off. With source scan off, the projector will remain at the selected source input even if the source is switched off or disconnected.

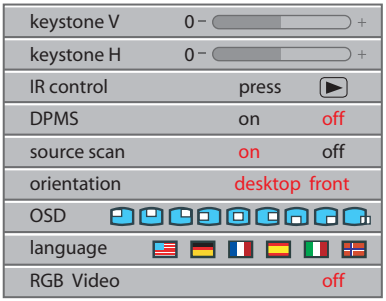
orientation
Select between desktop front, desktop rear, ceiling front and ceiling rear mode. The image will be flipped and reversed accordingly.

OSD
Select where to have the On Screen Display.

language
Select between languages.

RGB video
Selects RGB video on the component video input (YPbPr). Requires composite sync connected to the composite video input.

FOR ALL



IR CONTROLL - FOR ALL

IR front	enable	disable
IR back (left)	enable	disable
IR back (right)	enable	disable

UTILITIES SUB MENU

system information
Displays information about the source and projector status.

OSD
Turn the On Screen Display on (display) or off (hide) during source scan.

OSD timeout
Defines how long OSD is displayed after last key action before it disappears from the screen.

OSD background
Select background mode, whether transparent or opaque.

reset
Resets the projector to its basic settings. All parameters available in the various menus are reset to their factory values.

service menu
For service personnel only. A special service code is needed to access internal calibration controls and status information. Not accessible to the user.

test image
Applies a fixed test image for set-up purposes.

PIN code
Activate or de-activate PIN code. The PIN code allows controlled use of the projector.

PIN enable
Enable PIN code.

PIN disable
Disable PIN code.

PIN change
To change PIN code, enter old code, then new code twice.

LCD options.
Define options for the rear monitor LCD.

LCD timeout
Select timeout when LCD turns off after use.

LCD dim level
Select intensity in LCD backlight.

calibrate source
Allows calibration of projector to analog RGB source. RGB (VGA, BNC) sources typically have a slight difference between the signal levels of R, G and B, which is compensated for. Correct calibration requires use of proper test-image with upper half light grey 240 and the lower half dark grey 16.

FOR ALL

system information		press ▶
OSD	on	off
OSD timeout	50	seconds
OSD background	opaque	translucent
reset		press ▶
service menu		press ▶
test image	hide	show
PIN CODE		press ▶
LCD options		press ▶
calibrate source		press ▶

SYSTEM INFORMATION

system information			
source:	YPbPr	brightness:	60
format:	480p NTSC	contrast:	50
mode:	51	color:	40
software:	F3 301.35	sharpness:	3
white boost:	10	gamma:	film 1
RC-ID	0	color temp:	6500K
lamp 1:		lamp 2:	
- runtime:	0 hrs	- runtime:	0 hrs
- remaining:	1999 hrs	- remaining:	1999 hrs
- power:	100%	- power:	100 %
lens mounted:	standard (1.7-2.5 : 1)		
MAC:			
IP address:	LAN is not selected	projector port:	
subnet:	LAN is not selected	X-Port 1 port:	
gateway:	LAN is not selected		
serial nr.:		total runtime:	0 hrs

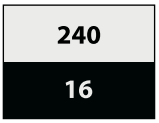
PIN CODE - FOR ALL

PIN enable	press	▶
PIN disable	press	▶
PIN change	press	▶

LCD OPTIONS - FOR ALL

LCD timeout	15	minutes
LCD dim level	100	– +

CALIBRATION TEST IMAGE



CONTROL SUB MENU

mode
Selects between RS232 and X-PORT control modes.

RS232 address
For use when daisy-chaining several units. Select auto or fixed address. Only one address scheme is allowed per daisy-chain. The auto address is allocated following the relative position in the daisy-chain. The fixed address is an absolute address. Only unique fixed addresses are allowed.

RS232 fixed
Select a unique fixed address in the range available.

baudrate
Selects between baudrates 4800, 9600 and 19200. A lower baudrate may be required in installations with long cable runs.

RC ID
Select address for individual remote control. By selecting an individual address, the projector will only react when this address is issued from the remote control

FOR ALL

mode		RS232
RS232 Address	auto	fixed
RS232 Fixed		1
baudrate		19200
RC ID		0

LAMP SUB MENU

Mode
select dual or single lamp mode.

eco
select eco mode (reduced power for longer lamp life).

advanced
individual lamp control.

single
select lamp 1 or lamp 2 as active lamp.

lamp 1, lamp 2 power
select lamp power from 80-100%.

remaining lamp 1, lamp 2
estimated remaining lamp time at current lamp power.

FOR ALL

mode	dual	single
eco	on	off
advanced	press	▶

ADVANCED FOR ALL

single	lamp1	lamp 2
lamp1 power	100 –	+
lamp2 power	100 –	+
remaining lamp1		1999
remaining lamp2		1999

RS 232

You may control and monitor the projector remotely through the serial RS232 control interface.

Two RS232 protocols are employed. A simple instruction set (SIS) ASCII protocol gives access to the most frequently used commands. In addition, a binary protocol is available where each command is a series of 32 bytes in one packet. The protocols allow for both SET and GET operations. To utilize GET operations the host needs a routine for receiving and interpreting incoming packets. SET-operations are used to force the projector into different modes, like setting brightness and contrast, switching between sources, etc.

A separate document “RS-232 and LAN communication protocol and command set” is available that describes the communications parameters and operational codes in detail.

LAN

The projector can be controlled and monitored through the LAN connector as an alternative to RS232.

LAN control is available either through an embedded web page for the most frequently used commands or using the same command set as for RS232 for full access to all system controls.

NOTE! THE PROJECTOR IS CONFIGURED WITH A DEFAULT IP ADDRESS. SEE THE SYSTEM INFORMATION AVAILABLE THROUGH THE MENU SYSTEM OR REMOTE CONTROL FOR THE ACTUAL IP-ADDRESS.

Detailed descriptions of configuration, use and command set is described in a separate document “RS-232 and LAN communication protocol and command set”.

You may consider using the LAN interface as a means of theft-detection. When the projector is removed, the LAN will be disconnected; this may be detected over the local area network and could be used to trigger an alarm.

NO IMAGE

No connection: Check if all connections are properly made.

Source off: Check if the equipment is powered on.

Lamp dead: The lamp may need replacement. Check the LAMP TIME in the UTILITIES sub menu.

Source hibernated: Engage the source to display and activate image.

Notebook external screen: Different notebook PC's use different combinations of keystrokes to enable the external graphics port.

Source scan off: Check SOURCE SCAN in the SET UP sub menu. If setting is OFF, the projector will not search for the next active source, but will remain with the current source selected.

No lens: Check if lens is attached properly.

Shutter engaged: Check if the shutter is engaged.

Lens cap: check if the lens cap is off!

DARK IMAGE

Old, worn lamp: The lamp may need replacement. Check the LAMP TIME in the UTILITIES sub menu.

Low BRIGHTNESS and CONTRAST settings: Press AUTO or use the menu system, PICTURE sub menu for CONTRAST and BRIGHTNESS adjustment.

FLICKERING IMAGE

Bad lamp: Replace the lamp. Check the LAMP TIME in the UTILITIES sub menu.

UNSHARP IMAGE

Keystone correction may have been activated inadvertently, compressing parts of the image that affect the display of fine-line graphics, text and other images of high resolution.

Source resolution is different from projectors native resolution: The projector will automatically scale and resize the input format to its native resolution. Use a different scaling factor in the PICTURE sub menu, ASPECT. You may also adjust the SHARPNESS.

The projector may from time to time need cleaning. Never open the unit, as this will void any warranties. Refer service and repair to qualified personnel only.

The projector is using lamps that have a limited life time. Please refer to the LAMP CHANGE section below for further details.

Only the exterior of the unit may be cleaned. Use a damp cloth. Make sure no liquids enter the inside of the projector

Vacuum clean all the air vents (A) regularly to maintain sufficient air flow.

The projection lens (B) is sensitive to scratches. Use lens cleaning tissue, available at all photographic stores when cleaning the projection lens. Use lens cap when not in use.

HEAVY DUTY AND CONTINOUS USE

The projector contains moving parts (such as cooling fans) that have limited life-expectancies. When the projector has been used for 7 500 hours, and when the unit is used in mission-critical applications, it is recommended that the projector is given preventive maintenance by a qualified service person. This will help ensure long term stable operation.

This product contains no user serviceable parts.

If the product fails to function as expected, please first check that all connections are properly made, and that the power cord is properly connected.

Please check that the projector as well as the video and computer sources are all switched on.

Cables and cords may break over time. Try to change cables and cords, in case there is a bad or intermittent connection.

Check if the circuit breaker or fuse of your mains is intact.

In the event of product failure, please contact your reseller. You should prepare a description of the symptoms of failure you experience.

Please also state product number and serial number as printed on the label on the bottom of the projector.

SERVICE PERSONNEL INFORMATION

WARNING
Use UV radiation eye and skin protection during servicing

The LAMP indicators on the keypad will turn red when lamp life expires.

Change the lamp when lifetime expires. Always replace lamp with the same type and rating.

The lamp includes an electronic lamp timer that is tracking the life time of the lamp.

Always disconnect the power cord and wait until the projector has cooled down (60 minutes) before opening the lamp cover .

A Release the screw (LAMP 1) or (LAMP 2) depending on which lamp that needs to be replaced.

B Open the lamp lid(s).

C Turn the three locking screws a quarter turn anti-clockwise.

D Pull the lamp out.

Replace with a new lamp in reverse order.

E Insert a new lamp. Observe the guide pins.

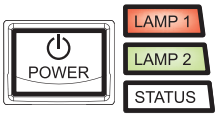
F Turn the tree locking screws a quarter turn clockwise.

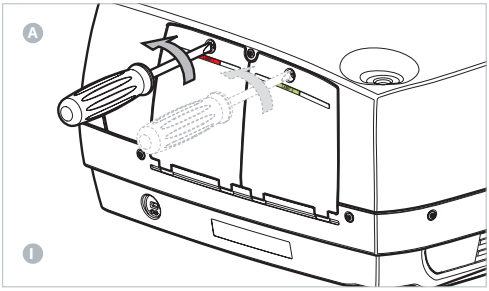
H Close the lamp lid.

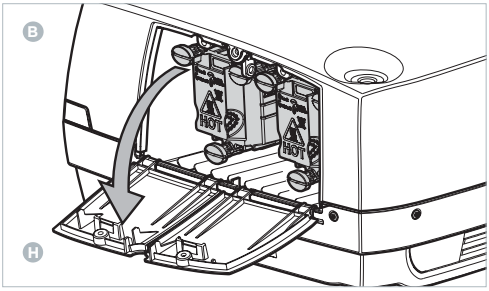
I Turn the locking screw clockwise.

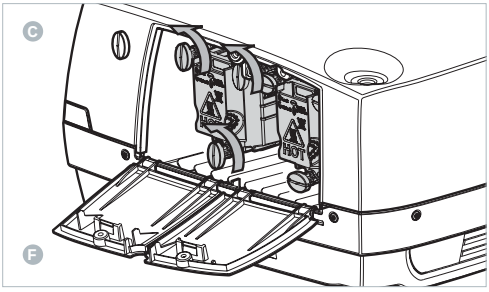
WARNING
Be careful not to touch the protective glass when replacing the lamp house, this may cause the protective glass to overheat and break while in use.

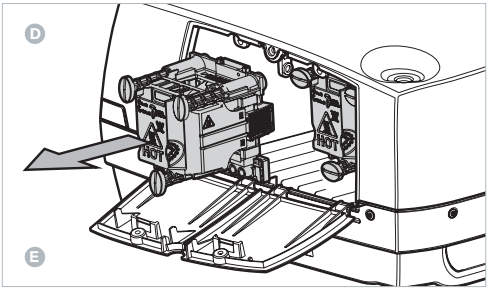
WARNING
Be extremely careful when removing the lamp module. In the unlikely event that the bulb ruptures, small glass fragments may be generated. The lamp module is designed to contain these fragments, but use caution when removing the lamp module.











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PROJECTOR UNIT	
Resolution	1400 x 1050 (native) SXGA+, 4 : 3 aspect ratio
Display technology	Single chip DLP™ technology by Texas Instruments®
Display device	LVDS DMD™ with DarkChip3™ technology
Computer Compatibility	UXGA, SXGA+, SXGA, XGA, SVGA, VGA, PC, MAC, SGI and other workstations, RGBHV, RGBS, RGsB
Video Compatibility	HDTV (1080i, 720p, 576i/p, 480i/p), NTSC, NTSC 4.43, PAL, PAL-M, PAL-N, SECAM. Faroudja™ de-interlacing with automatic film mode detection (3 : 2 and 2 : 2 pull-down)
Aspect Ratio	4 : 3 (native), 16 : 9 / 5 : 4 (compatible)
Bandwidth	Up to 205 MHz on analog RGB Up to 160 MHz on DVI Up to 75 MHz on component input
Brightness	5500 ANSI lumen (typ), 4500 ANSI lumen (min) @ 2x250W lamp power*) 4400 ANSI lumen (typ), 3600 ANSI lumen (min) @ ECO-mode 2x200W lamp power*) *) Initial brightness.
Contrast	7500 : 1 B/W (max) at max IRIS, 1000 : 1 B/W (min) at min IRIS
Lamp	2x250W UHP™ dimmable to 2x200W
Lamp Life	2000 hrs (typ) to 50% brightness @ 250W 4000 hrs (typ) to 50% brightness @ 200W
Sound Pressure Level	Lp = 36 dB(A)/20mPa (typ), 45 dB(A)/20mPa (max) @ 20°C/68°F, sea level
Dimensions	400 x 500 x 200 mm / 15.7" x 19.7" x 7.9", excluding lens
Weight	12.6 kg / 27.8 lbs, excluding lens
Inputs	1 VGA 15 pin female HD-DSUB analog RGBHV 1 DVI-D female digital RGB 5 BNC male analog RGBHV 1 Component video female 3 x RCA/phono 1 S-video female 4 pin mini-DIN 1 C-video female RCA/phono 1 RS 232 9 pin female DSUB (control, firmware update) 1 USB-B female (control, firmware update) 1 LAN RJ-45 female (control, firmware update) 1 Remote Control 3.5 mm female stereo jack
Outputs	1 VGA Monitor 15 pin female HD-DSUB analog RGBHV 2 Trigger 3.5 mm female stereo jack, 12 V @ 80 mA Max 1 RS 232 9 pin male DSUB
Power	90-260 VAC, 50-60 Hz, 840W
Energy dissipation	2866BTU/h
MTBF	17500 hrs
Conformance	CE, FCC A, CSA(C,US)

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PROJECTOR UNIT	
Temperature operating	0-40°C / 32-104°F, 0-1500 m / 0-4950 ft 0-35°C / 32-95°F, 1500-3000 m / 4950-9900 ft
Temperature storage	-20 - 60°C / -4 - 140°F
Humidity operating	20-90% RH, non-condensing
Humidity storage	10-95% RH, non-condensing
LENSES	
Short fixed lens	f = 15.32 mm F = 2.1 - 6.5 throw ratio = 0.8 : 1 (distance : width) throw distance = 0.5 - 2.5 m / 1.65 - 8,25 ft. horizontal shift = +/- 1% (fine adjust only) vertical shift = +/- 1% (fine adjust only)
Medium fixed lens	f = 22.98 mm F = 2.1 - 6.5 throw ratio = 1.2 : 1 (distance : width) throw distance =1 - 15 m / 3.3 -50 ft. horizontal shift = +/- 90% vertical shift = +/- 105%
Short zoom lens	f = 24.9 - 32.6 mm F = 2.1 - 6.5 zoom ratio = 1.3 x throw ratio = 1.3 - 1.7 : 1 (distance : width) throw distance =1 - 15 m / 3.3 - 50 ft. horizontal shift = +/- 90% vertical shift = +/- 105%
Standard zoom lens	f = 32.5 - 49 mm F = 2.1 - 6.5 zoom ratio = 1.5 x throw ratio = 1.7 - 2.5 : 1 (distance : width) throw distance = 2 - 15 m / 6.6 - 50 ft. horizontal shift = +/- 90% vertical shift = +/- 105%
Long zoom lens	f = 47.9 - 76.6 mm F = 2.1 - 6.5 zoom ratio = 1.6 x throw ratio = 2.5 - 4.0 : 1 (distance : width) throw distance = 2 - 30 m / 6.6 - 100 ft. horizontal shift = +/- 90% vertical shift = +/- 105%
Very long zoom lens	f = 76.6 - 134.1 mm F = 2.1 - 6.5 zoom ratio = 1.75 x throw ratio = 4.0 - 7.0 : 1 (distance : width) throw distance = 4 - 40 m / 13.2 - 132 ft. horizontal shift = +/- 90% vertical shift = +/- 105%

Specifications subject to change without prior notice. All values may vary up to +/- 20%.

CONNECTORS

S-Video

4 PIN MINI DIN FEMALE

1 GND
2 GND
3 Luma
4 Chroma

C-Video

PHONO/RCA FEMALE

STEM YELLOW: Composite
SHIELD: GND

G/Y

PHONO/RCA FEMALE

STEM GREEN: G/Y
SHIELD: GND

B/Pb

PHONO/RCA FEMALE

STEM BLUE: B/Pb
SHIELD: GND

R/Pr

PHONO/RCA FEMALE

STEM RED: R/Pr
SHIELD: GND

Computer DVI

DVI-D

1 TMDS Data 2-
2 TMDS Data 2+
3 TMDS Data 2/4 Shield
4 Not used
5 Not used
6 DDC Clock
7 DDC Data
8 NC
9 TMDS Data 1-
10 TMDS Data 1+
11 TMDS Data 1/3 Shield
12 Not used
13 Not used
14 +5V Power

Computer VGA 1

15 HIGH DENSITY DSUB FEMALE

1 Analog R in
2 Analog G in
3 Analog B in
4 AGND
5 AGND
6 Analog R GND in
7 Analog G GND in
8 Analog B GND in
9 Reserved
10 Sync GND in
11 AGND
12 DDC/SDA
13 H Sync in
14 V Sync in
15 DDC/SCL

Monitor VGA

15 HIGH DENSITY DSUB FEMALE

1 Analog R in
2 Analog G in
3 Analog B in
4 NC
5 AGND
6 Analog R GND in
7 Analog G GND in
8 Analog B GND in
9 Reserved
10 Sync GND in
11 NC
12 NC
13 H Sync in
14 V Sync in
15 NC

BNC H - C

BNC MALE

STEM: Horizontal/ Composite sync.
SHIELD: GND

BNC V

BNC MALE

STEM: Vertical sync.

SHIELD: GND

BNC R

BNC MALE

STEM: RED

SHIELD: GND

BNC G

BNC MALE

STEM: GREEN

SHIELD: GND

BNC B

BNC MALE

STEM: BLUE

SHIELD: GND

RS-232 in

9 PIN DSUB FEMALE

1 NC
2 RXD
3 TXD
4 NC
5 GND
6 NC
7 NC
8 NC

RS-232 out

9 PIN DSUB MALE

1 NC
2 TXD
3 RXD
4 NC
5 GND
6 NC
7 NC
8 NC

RC in

3,5mm stereo mini jack

TIP: 5V DC
RING: SIGNAL
STEM: GND

Screen

3.5mm mini jack

TIP: 12V DC 60mA max

STEM: GND

Aspect

3.5mm mini jack

TIP: 12V DC 80mA max

STEM: GND

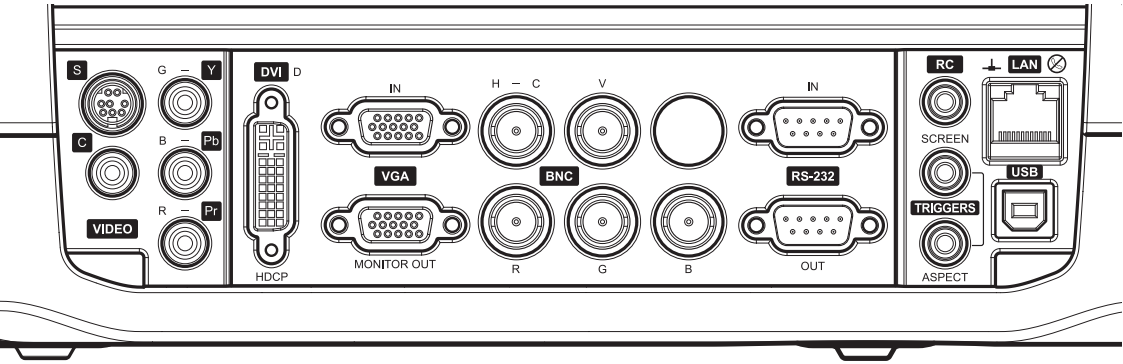
LAN

1 TX+
2 TX-
3 RX+
4 GND
5 GND
6 RX-
7 GND
8 GND

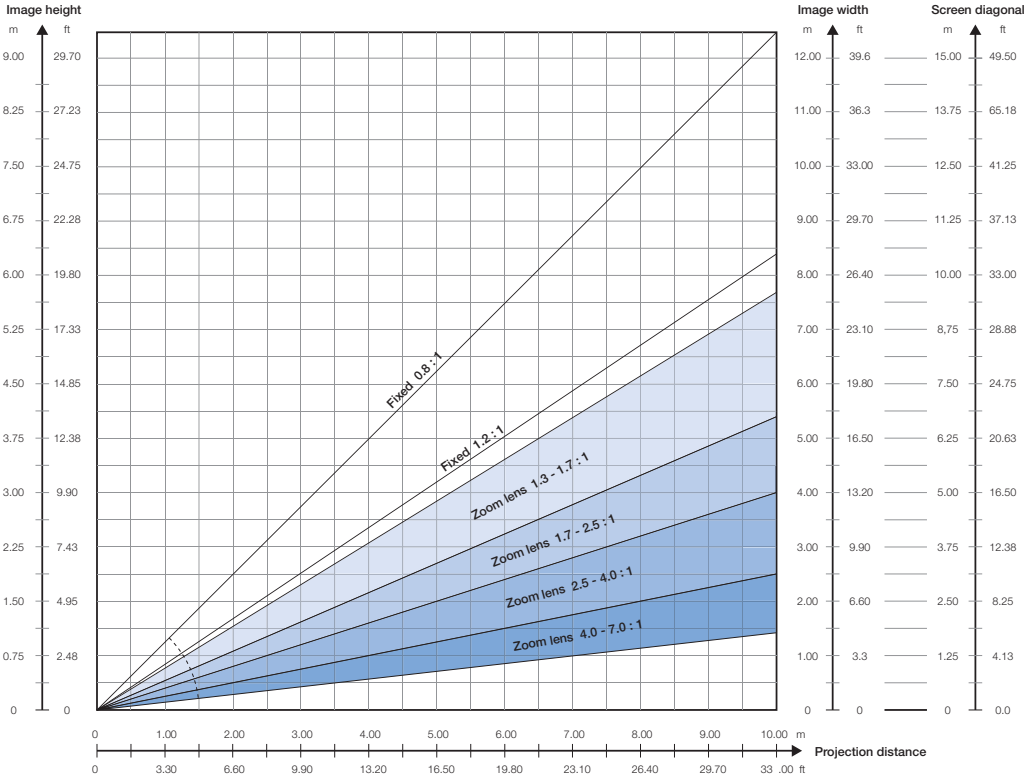
USB

DIGITAL USB

1 VCC
2 -Data
3 +Data
4 GND



THROW RATIOS F3, ZOOM AND FIXED LENSES



Accuracy: +/- 5%

FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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EN 55022 WARNING

This is a Class A product. In a domestic environment it may cause radio interference, in which case the user may be required to take adequate measures. The typical use is in a conference room, meeting room or auditorium.

CANADA

This Class A digital apparatus complies with Canadian ICES-003.
CCet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

USER GUIDE

ENGLISH

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